SYSTEM CONTROLLERS

Delta Control Unit DCU-050

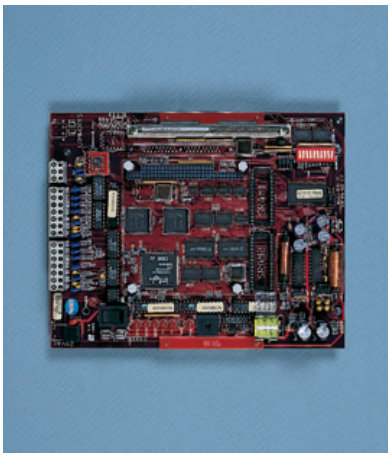
ORCA: Open Real-time Control Architecture

Description

Incorporating high performance 32-bit architecture, the Delta Control Unit is the heart of the modular ORCA (Open Real-time Controller Architecture) product series. Various plug-in network cards and I/O boards allow it to be configured as a powerful communications controller, implementing global optimization strategies for distributed Local Area Network (LAN) devices, as well as a Direct Digital Control (DDC) panel, processing up to 145 directly connected input/output (I/O) points.

Application

The Delta Control Unit (DCU) is the heart of the ORCA Series modular controller, providing a state-of-the art 32-bit platform on which all Input/ Output (I/O) and additional network and device options are configured for performing various building control and/or system communication functions.



DCU-050

Communication

The DCU provides an on-board RS-485 LAN port, operating at 76,800 bits per second, for connecting the Delta range of distributed LAN devices which autonomously implement smaller plant and individual zone/room control functions at a local level. The process automation standard PC/104 expansion bus is utilized to allow various LAN and future device options to be plugged into the DCU in a stacked PC/104 card format for minimizing space requirements. This allows DCU-based controllers to be connected on a high performance local or wide area communications network, by simply plugging in one or more LAN expansion cards to suit the facilities layout and operational requirements.

The Ethernet card (DXC-052-2), operating at 10 million bits/sec., allows controllers to be connected to new or existing Ethernet LANs or WANs, providing for high-speed operator connectivity on any PC Ethernet node and cost-effective installation where Ethernet cabling already exist (e.g. between buildings). >>

SPECIFICATIONS

Communications Ports

Serial RS-232 (max. 38.4 Kbits/s):

2 Ports for PC and/or modem

Secondary networks:

Configured as BACnet™ MS/TP or Delta IntelliNet zone network

Primary Networks:

IntelliNet @ 1 Mbits/s
(Requires DXC052-1 card option)

Ethernet @ 10 Mbits/s
(Requires DXC052-2 card option)

Memory

Standard SRAM of 256 KB
(with 128 KB useable for database)

Standard DRAM of 1 MB
(SIMM module)

Standard Flash of 1 MB
(instead of EPROM's) >>

Integrated Facilities Management Solutions. Simplified!

Delta Controls Inc.
17850 56th Avenue
Surrey
British Columbia
Canada

Tel: (604) 574-9444
Fax: (604) 574-7793

www.deltacontrols.com

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Rev. 09_01

Delta Control Unit

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Plugging both the IntelliNet and the Ethernet cards on the same DCU configures it as a node that links controllers operating on the IntelliNet LAN (e.g. within an area or building) to an Ethernet-based wide area network e.g. connecting multiple areas or buildings together.

I/O Configuration (Optional)

The DCU modular design allows it to be plugged onto a Base I/O board (i.e. DBB-060) for DDC-based operation of up to 33 directly connected inputs and outputs. The controller point capacity can be further extended by I/O modules and expansion cards that can be plugged into the Base I/O module.

User Interface

The DCU provide two serial ports for connecting to a PC-based operator station and/or modem for remote operator access and automatic alarm dial-out. Complete graphical, menu-driven and command-based operation and full programming is achieved from any PC-based operator workstation (DOW-322) connected via the RS-232 (local), IntelliNet/Ethernet (LAN) or modem (remote) connection.

Database

Utilizing an object-oriented data structure, ORCA distributed database technology offers the user simple, powerful, database configuration and programming options for configuring various objects that provide the following functions:

■ Connected I/O, complete with scale ranges and units. ■ Event and alarm management. ■ Equipment scheduling, including optimum start/ stop. ■ PID controllers & HVAC functions. ■ Control sequences. ■ Peak demand based load shedding. ■ Trend logging and statistics. ■ Historical data accumulation. ■ Distributed lighting operation. ■ Distributed access control. ■ Distributed zone and individual room control. ■ Third-party system integration (e.g. life safety, metering, HVAC, and PLC). >>

SPECIFICATIONS (cont.)

Power

24 VAC, 75 VA

Power Supply (on-board)

Full wave rectified

Battery Backup

72 hours minimum for database and real-time clock through a field replaceable NiMH Battery

Wiring

Class II

Ambient

32° to 100° F (0° to 40° C)

10 to 90% RH (non-condensing)

Size

6.45" x 7.5"
(16.4 cm x 19 cm)

0.7 lb. (320 g)

Approvals/Standards

UL; CE; FCC, Part 15, Class A

Delta Control Unit DCU-050

Programming

All HVAC, lighting, access and energy management strategies are implemented through Delta's powerful on-line General Control Language (GCL). GCL programs are objects that define the interactions and the flow of information between the functional database objects listed above. A wide range of mathematical, logical and functional relations allow any operational sequences and dynamic building strategies to be implemented in a self-documenting manner.

An important feature of the ORCA on-line programming environment is the ability to access on a system-wide basis all objects resident in all controllers, from a PC connected to any DCU-based controller or any LAN node.

Features

- Modular design allows the DCU be built-up to match exact I/O requirements of any building plant or equipment being monitored/controlled, and to provide a LAN/WAN-based architecture to fit any facility topology.
- High performance 32-bit design.
- Two BACnet™ serial ports for PC and/or modem connection
- BACnet™ MS/TP RS-485 port operating at 76,800 bits/s for LAN communication with programmable peer-to-peer BACnet™ MS/TP controllers or for Intelli Con Micro-panels, and Intelli-Con zone and room controllers distributed within the facility
- IntelliNet (1 million bits/s) and/or Ethernet (10 million bits/s) highspeed peer-to-peer plug-in network card options for peer-to-peer communication between DCU-based controllers
- Mounts on optional Base I/O board for DDC-based operation of directly connected inputs and outputs (expandable to max. 145 I/O)
- Extendible user memory through RAM chip sockets and SIMMs for future memory expansion, backed by field replaceable NiMH battery for min. 72-hour duration in the event of power failure.
- Factory supplied operating software is conveniently stored in non-volatile FLASH memory, so that new features can be downloaded from an operator station, instead of changing firmware chips in the field.
- Seamless compatibility with Intelli-Sys generation of controllers and operator software.

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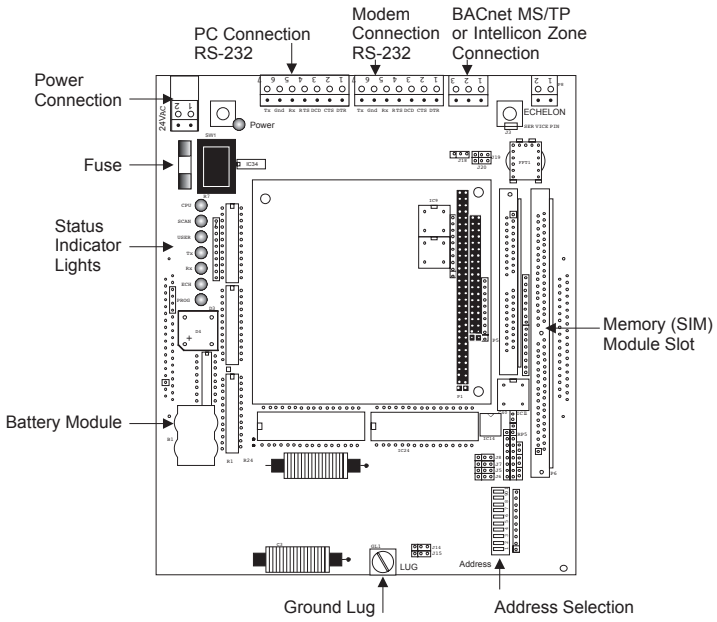

DCU-050 Connection Diagram

Ordering

To order a Delta Control Unit, specify the following product number DCU-050, together with required software version.

Associated Product

DBB-060:	Base I/O Board (refer to this product sheet for further I/O accessories)
DLC-051:	LONWorks™ FTT Card
DXC-052-1:	IntelliNet LAN Card
DXC-052-2:	Ethernet LAN Card
DXC-052-3:	Ethernet LAN Card (10Base-T only)
DEN-768:	Enclosures

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